REMARKS

Claims 73, 80, 81, 106 to 109, 111, 112, 115, 116 and 121 to 132 are under consideration. Claims 95 to 97 have been cancelled herein without prejudice. Applicants maintain the right to prosecute the cancelled claims in any related application claiming the benefit of priority of the subject application.

Regarding the Claim Amendments

The amendments are supported by the originally filed specification. In particular, the amendment to claim 80 to be an independent claim is supported, for example, by originally filed claims 1, 7, and 17 to 19. Thus, as the claim amendment is supported by the originally filed specification, no new matter has been added and entry thereof is respectfully requested.

Previously Filed Exhibit D

For the Examiner's convenience, Applicants wish to summarize the data from the previously submitted selected pages of PCT WO 2010/088739 (Exhibit D), a complete copy of which was also submitted in a prior IDS). Applicants note that PCT WO 2010/088739 discloses, among other things, variant antibody sequences that retain binding activity, antigen identities, and studies of variant antibody sequences binding to target cells that express antigen to which SAM-6 antibody binds. Applicants reference the following specific studies from the published application as merely examples of studies that corroborate that additional knowledge of antigen identity greater than disclosed in the subject application is not essential to identify sequence variants that bind as recited in the claims.

Significantly, the studies in WO 2010/088739 (Example 14, pages 99-100) are an analysis of different variant sequences of SAM-6 antibody, including scFVs, one of which scFVs has 40 amino acid residues in the VL chain changed compared to VL (SEQ ID NO:1), that confirm binding to several different cancer cell lines, including BxPC-3 cells recited in the claims. The different SAM-6 VH and VL chain sequences employed in the binding studies are shown, and the changes made to VH and VL sequences summarized, in pages 87 to 91, 94 and 95 of WO 2010/088739.

Using conventional FACS or confocal microscopy analysis, binding of antibody sequence variants and scFVs was determined and distinguished from the absence of binding (antibody variants do not bind to control 23132/93 cell lines) using BxPC-3 and other cell lines. In particular, for example, FACS analysis revealed that SAM-6 scFV, denoted SAM-6

1.1A scFv, and scFV SAM-6 sequence variants, denoted SAM-6 KTA scFV, which has a "KT" instead of an "RP" in VH chain CDR3 of SEQ ID NO:3, SAM-6 VHVL opt scFV and SAM-6 Percevia (which has a change in a framework amino acid of VL), respectively, bind to BxPC3 cells (Example 14, pages 99-100). Additional confocal microscopy analysis confirmed binding of these variant scFVs to BxPC3 cells. In sum, ELISA and confocal microscopy analysis confirmed that 4 different variant SAM-6 antibody sequences bound to BxPC-3 cells recited in the claims.

With respect to binding of variable region heavy chain sequence (SEQ ID NO:3) of SAM-6 antibody alone, Applicants respectfully direct the Examiner's attention to WO 2010/088739 (Example 21, pages 103-105, and Figure 28), which discloses binding data for VH chain sequence alone. In particular, VH chain alone had similar binding activity to HeLa cell as two scFVs, denoted SAM-6 2.7 and SAM-6 opti. Even though the HeLa cell lines are not cell lines disclosed in the subject application to bind to SAM-6, in view of the binding of both SAM-6 2.7 and SAM-6 opti scFVs, as well as binding of VH chain alone to HeLa cells, it is clear that such cells have the correct target for SAM-6 binding.

In view of the foregoing, full consideration of the foregoing data in WO 2010/088739, which confirm that sequence variants of VH chain (SEQ ID NO:3) and VL chain (SEQ ID NO:1), as well as scFV and variant scFVs, and VH chain alone retain antigen binding activity, is respectfully requested.

REJECTION UNDER 35 U.S.C. §112, FIRST PARAGRAPH, *WRITTEN DESCRIPTION*

The rejection of claims 73, 80, 81, 106 to 112, 115, 116 and 121 to 132 under 35 U.S.C. §112, first paragraph as allegedly lacking an adequate written description is respectfully traversed. According to the Patent Office, allegedly the claims contain subject matter which is not adequately described in the specification to reasonably convey to one skilled in the art that Applicants had possession of the invention.

Applicants first respectfully point out that the claimed antibodies are expressly required to have CDR sequences identical to CDR1, CDR2 and CDR3 of SEQ ID NO:3. As the CDR1, CDR2 and CDR3 sequences of SEQ ID NO:3 are the primary determinants of binding activity, Applicants submit that variants outside of the sequences could be ascertained by one of skill in the art. As corroborated by the binding studies described in WO 2010/088739, variants of SEQ ID NOs:1 and 3 that retain binding activity are permitted, even when the variant occurs in VH chain CDRs, such as CDR3. Thus, one of skill in the art

would have reasonably known of variant sequences having a high probability of binding to target. Applicants respectfully request that the Examiner give full consideration to the binding activity of the numerous SAM-6 sequence variants, fragments (scFV, diabodies) and VH chain alone disclosed in WO 2010/088739.

To summarize, the claimed antibodies require the functional feature of binding to a common antigen expressed by at least one well-defined cancer cell line, and binding to the antigen to which SAM-6 defined by the amino acid sequences of SEQ ID NOs:1 and 3 bind, the claimed antibodies and functional fragments also are described structurally. Furthermore, the claims specifically require sequence identity to the CDR1, CDR2 and CDR3 of SEQ ID NO:3 in their entirety. Thus, the claimed antibodies and functional fragments share both common functional (bind to a common epitope) and substantial structural (sequence identity) to SAM-6. Moreover, the data described in WO 2010/088739, which show that variants of SEQ ID NOs:1 and 3, scFVs and VH chain alone retain binding activity, confirm that one skilled in the art could have been able to predict with a high degree of confidence substitutions of SEQ ID NOs:1 and 3 that would not destroy binding activity.

In view of the foregoing and the reasons of record, the claims are adequately described under 35 U.S.C. §112, first paragraph. Accordingly, Applicants respectfully request that the rejection be withdrawn.

CONCLUSION

In summary, for the reasons set forth herein, Applicants maintain that the claims clearly and patentably define the invention, and respectfully request that the Examiner reconsider the various grounds set forth in the Office Action, and respectfully request the allowance of the claims which are now pending.

The Examiner is respectfully requested to contact Applicant's representative at (858) 509-4065 if a discussion would expedite allowance of the claims.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

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